



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,146	09/25/2006	David Alan Pears	HGX-012.01	7751
25181	7590	12/02/2011	EXAMINER	
FOLEY HOAG, LLP			QIAN, YUN	
PATENT GROUP, WORLD TRADE CENTER WEST				
155 SEAPORT BLVD			ART UNIT	PAPER NUMBER
BOSTON, MA 02110			1732	
			NOTIFICATION DATE	DELIVERY MODE
			12/02/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Patent@foleyhoag.com

Office Action Summary	Application No. 10/568,146	Applicant(s) PEARS ET AL.	
	Examiner YUN QIAN	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1,4-6,10,36 and 37 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1,4-6,10,36 and 37 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Status of Claims

Claims 1, 4-6, 10, and 36-37 remain for examination. Claims 1, 4-6, 10-12, and 36-37 are amended. Claims 2-3, 7-9, and 13-35 have been canceled.

Previous Grounds of Rejection

In the light of the amendment, the rejection under 35 U.S.C. 112, first paragraph, with respect to claims 1, 4-6, 9-12 and 35-37 is withdrawn. Among them, claims 10-12 and 35 have been cancelled.

In the light of the amendment, the rejection under 35 U.S.C. 103(a) as being unpatentable over by Ley et al. (WO 03/006151) in view of Kobayashi et al. (EP 1386663) with respect to claims 1, 4-6, 9-12 and 35-37 is withdrawn. Among them, claims 10-12 and 35 have been cancelled.

A new ground of rejection is made as follows with respect to the amended claim 1, 4-6, 10-12 and 36-37.

New Ground(s) Rejection

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5 and 10 are rejected under 35 U.S.C.102 (b) as being anticipated by Yu et al. (Chem. Commun., 2003, 678-679, Published on web 12th February 2003).

Regarding claims 1 and 5, Yu et al. teaches recyclable polyurea-encapsulated palladium catalyst Pd EnCatTM comprising Pd(OAc)₂ and ethylene diamine (corresponding to applicants' palladium salt and ligand). The polyurea microcapsule taught by Yu et al. is the permeable polymer microcapsule shell as the instant claim (left column on page 678 and Notes 11).

Regarding claim 10, as discussed above, ethylene diamine taught by Yu et al. is the ligand comprising heteroatom of Nitrogen.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 1732

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

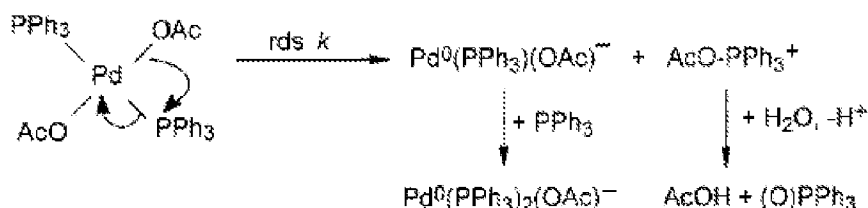
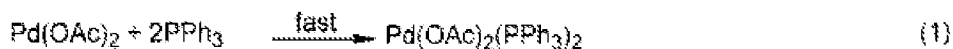
Claims 1, 4-6, 9-12 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Ley et al. (WO 03/006151) in view of Amatore et al. (Organometallics, 2001, 20, 3241-3249).

Regarding claim 1, Ley et al. teaches a microencapsulated catalyst-ligand system comprising a catalyst such as Pd (II) catalyst $\text{Pd}(\text{OAc})_2$ or a Pd(0) catalyst $\text{Pd}(\text{PPh}_3)_4$ and microencapsulated within a permeable polymer microcapsule shell (claims 1-3).

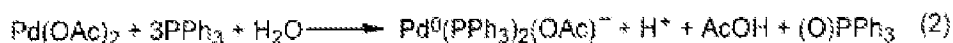
Although Ley et al. discloses that palladium may be used directly in the form of palladium acetate, he does not specifically disclose the Pd salt and a ligand encapsulated within a microcapsule shell as per applicant claim 1.

Amatore et al. teaches the formation of Pd(0) complexes from palladium acetate and phosphine ligand such as PPh_3 and 1,3-bis(diphenylphino)propane (Scheme 1 and Abstract):

Scheme 1. Mechanism of the Formation of Pd⁰ from Pd(OAc)₂ and PPh₃



Overall reaction



It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the Pd(OAc)₂/3PPh₃ catalyst disclosed by Amatore et al. to the microcapsulated Pd(0) catalyst of Ley et al. as an alternative Pd(0) complex to obtain the invention as specified in the claim 1, motivated by the fact that Pd(OAc)₂/3PPh₃ is cheaper reagents than Pd(PPh₃)₄ and Pd(OAc)₂ is stable in air.

Since both of them disclose phosphine ligand stabilized Pd(0) complex, one would have a reasonable expectation of success.

Product-by-process limitation in this claim is noted. It is considered while the product of the reference is made by a different process, the product made and disclosed is the same as being claimed. see "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a

Art Unit: 1732

different process." (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802,218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113)

Regarding claim 4, the permeable polymer microcapsule shell taught by Ley et al. is the product of self-condensation and/or cross-linking of etherified urea-formaldehyde resins or prepolymers in which from about 50 to about 98% of the methylol groups have been etherified with a C₄-C₁₀ alcohol (claim 3).

Regarding claim 5, the permeable polymer microcapsule shell is a polyurea microcapsule prepared.

Product-by-process limitation in this claim is noted. It is considered while the product of the reference is made by a different process, the product made and disclosed is the same as being claimed. see "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to

applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802,218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113)

Regarding claim 6, Ley et al. teaches 1-chloro-2,4-phenylene diisocyanate, m-phenylene diisocyanate, and PMPPI as the recited claim (claim 5).

Regarding claims 10-12, as discussed above, the catalyst taught by Amatore et al. contains $\text{Pd}(\text{OAc})_2/3 \text{PPh}_3$ ($\text{R}^{1-3}=\text{Ph}$), which meets the claimed limitations.

Regarding claims 36-37, as discussed above, the combined references of Ley et al. and Amatore et al. teach the microencapsulated catalyst system containing $\text{Pd}(\text{OAc})_2/3\text{PPh}_3$ ligand, and the shell made from PMPPI and/or tolylene diisocyanate.

Response to Arguments

With regards to the previous Grounds of Rejection

Applicant's arguments filed on August 29, 2011 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 1732

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Art Unit: 1732

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YUN QIAN/
Examiner, Art Unit 1732

October 29, 2011

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1732